Salam Afiouni

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Education

Columbia University   *New York, USA*

PhD in Operations Research   *Sept. 2023 - Present*

- **Advisor:** Prof. Christian Kroer
- **Relevant Courses:** Algorithmic Game Theory, Optimization, Market Design, Stochastic Modeling, Analysis of Algorithms

American University of Beirut   *Beirut, Lebanon*

BE in Industrial Engineering, OR track   *Aug. 2019 - May 2023*

- Minor in Applied Mathematics
- Graduated with High Distinction. Cumulative GPA **4.14**
- **Relevant Courses:** Operations Research, Advanced Optimization Techniques, Numerical Computing, Numerical Linear Algebra, Discrete Events Simulation, Algorithmic Graph Theory, Data Analytics for Operations Research

Experience

Graduate Research Assistant   *New York, USA*

Coffee and Convexity Lab - Columbia University   *Sept. 2023 - Present*

- **Research Interests:** Mechanism Design, Game Theory, Optimization, Economics and Computation
- Specific: Pacing Equilibrium in Auctions, Nash Equilibrium, Market Equilibrium, Equilibrium Computation, No-regret Learning

Research Assistant   *Beirut, Lebanon*

Control and Optimization Laboratory - American University Beirut   *Oct. 2022 - Sept 2023*

- Worked with Prof. Dany Abou Jaoude on the problem of distributed resource allocation over graphs with uncertainty
- Developed a distributed algorithm for fair resource allocation with improved performance under constant step-size
- **Academic areas:** Distributed Optimization, Resource Allocation

Researcher   *Remote*

Adaptive Systems Laboratory - EPFL   *Oct. 2022 - June 2023*

- Studied the relationship between Nash equilibrium and Pareto optimal solutions for the multi-objective optimization problem
- Investigated a biologically-inspired design for the competition problem
- **Academic areas:** Min-Max Optimization, Multi-Objective Optimization

Research Intern - EPFL Excellence in Engineering Fellowship Program   *Lausanne, Switzerland*

Adaptive Systems Laboratory - EPFL   *July. 2022 - Sept. 2022*

- Worked under the supervision of Prof. Ali H. Sayed and Dr. Flavio Pavan on the problem of Optimization Over Competing Networks
- Formulated and analyzed the local and global distributed optimization problems in the LMS setting
- **Academic areas:** Adaptive and Distributed Optimization, Data-driven Optimization, Game Theory

Publications

Afiouni, S., Černý, J., Ling, C. K., & Kroer, C. (2025). Commitment to Sparse Strategies in Two-Player Games. AAAI 25 🐙 github.com/CoffeeAndConvexity/SparseEquilibria

Colonel Blotto with Battlefield Games   *Under Review*

Teaching

| **IEOR 4004** | Optimization Models and Methods | Fall 2025 |
| **CSOR 4231** | Analysis of Algorithms | Spring 2025 |

Course Projects

Columbia University   *NY, USA*

IEOR Department

- Coalition Formation in Auctions via Social Learning   Spring 2025
- The Connection between Stable Matching and Optimal Transport   Spring 2024

American University of Beirut   *Beirut, Lebanon*

Industrial Engineering Department

- Machine Learning for Crowdfunding Success   May 2023
- Queuing System Analysis for Optimal Server Allocation at Checkouts in Spinneys Supermarket, Lebanon   November 2022
- Gradient Descent Convergence Guarantee by the Stable Manifold Theorem   December 2021
- Movie Recommendation System   November 2021
- Cost Optimization: A Poisson Process and A Markov Chain Approach   May 2021

Honors and Awards

2023	**LebNet EiC Scholarship**, LebNet Program	*USA*
2019-2023	**Dean's Honor List**, American University of Beirut	*Lebanon*
2020-2023	**Francois Hamze Scholarship**, American University of Beirut	*Lebanon*
2022	**EPFL Excellence in Engineering Fellowship** , EPFL	*Switzerland*

Service

2025	**Reviewer**, AAAI'26
Present	**Member of the PhD Council**, IEOR Department

Skills

Programming Languages	Python, MATLAB, R
Numerical Libraries	Gurobi, CVXPY, Matplotlib, NumPy, SciPy, pandas
Soft Skills	Academic writing, Presentation skills, Leadership skills, Hands-on learning

Languages

English	Professional proficiency	IELTS 8
French	Bilingual Proficiency	
Arabic	Native Proficiency	